

NEW ENGLAND NOTE

*SCLERIA RETICULARIS* (CYPERACEAE)  
NEW TO NEW HAMPSHIRE

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*Scleria reticularis* Michx., reticulated nut-rush, is a plant of wet, sandy soil and southern pine barrens ranging from tropical America and southern U.S., north mainly along the coast to New England, with disjunct extensions into the midwest and south central states of Arkansas, Oklahoma, Missouri, Illinois, Indiana, Michigan, and Wisconsin (Reznicek 1994). Throughout much of its range *S. reticularis* is found on damp, sandy shores of coastal plain ponds that have broadly fluctuating water levels. Sorrie (1994) reports on the distribution of these ponds in New England, noting their primary concentration on the glacio-fluvial deposits of southeastern Massachusetts, adjacent Rhode Island and discontinuous localities in Connecticut, inland Massachusetts and the Ossipee Lake region of New Hampshire and Maine. Records compiled by the Massachusetts Endangered Species and Natural Heritage Program indicate that *S. reticularis* is extant and locally abundant on pond borders in 7 towns in Plymouth, Barnstable and Nantucket Counties, with 61 stations recorded as of 1989. At this time, documentation of new occurrences was discontinued. An extant station in the Connecticut River valley in the south-central Massachusetts town of Ludlow, Hampden County, is disjunct from the main distribution. A single historic station at Winter Pond, Winchester, Middlesex County, has not been observed since 1933 and possibly is extirpated. There are 3 extant populations in Washington County in southern Rhode Island and an historic collection from Providence County to the north (Rhode Island Natural Heritage Program). Thus the New Hampshire population discussed here is nearly 75 miles (123 km) disjunct from the nearest extant population in Massachusetts.

A small population of *Scleria reticularis* (*Sperduto* 2344 NHA, NEBC, MICH; *Sperduto* 3162 NHA) was discovered on the sandy, shallow-peat upper shore of Rocky Hill Pond in Litchfield, Hillsborough County, New Hampshire on September 16, 1992 by the author, Lesley Sneddon and Mark Anderson.

The majority of several hundred plants observed was found along a short section of the pond margin. Numerous other species characteristic of coastal plain pondshores in New England were associated with the *Scleria* including *Rhexia virginica*, *Eleocharis tenuis*, *Agrostis hyemalis*, *Glyceria borealis*, *G. acutiflora*, *Juncus pelocarpus*, *J. canadensis*, *Drosera intermedia*, *Gratiola aurea*, *Hypericum boreale*, *H. gentianoides*, *Dulichium arundinaceum*, *Panicum spretum*, *P. tuckermanii*, *Cyperus dentatus*, *Viola lanceolata*, *Rhynchospora capitellata*, *Bulbostylis capillaris*, and *Fimbristylis autumnalis*. Other species elsewhere in the basin include *Euthamia tenuifolia*, *Xyris difformis* var. *difformis*, *Vaccinium macrocarpon*, *Lindernia anagallidea*, *Scirpus smithii*, *Eleocharis smallii*, *E. olivacea*, *E. obtusa*, *Potamogeton bicupulatus*, *P. oakesianus*, *Nymphoides cordata*, *Utricularia radiata* and *Myriophyllum humile*. A total of 80 species was recorded in the wetland habitats of the pond basin.

Rocky Hill Pond is found in a 2.7 acre basin blanketed by one to several meters of sand deposits overlying deeper, fine-textured lake-bed sediments of the postglacial Lake Merrimack (Goldthwait et al. 1969; J. E. Cotton, USGS, pers. comm.). This portion of the southern Merrimack River valley contains an extensive groundwater aquifer associated with the reworked glaciofluvial and glacio-lacustrine deposits of the former Lake Merrimack. The pond basin has a moderately shallow profile with a maximum depth of 1.2 meters below the upland margin. Intermittent observations over several years from 1991–1994 revealed widely fluctuating seasonal and annual water levels. The pond level rises every spring, occupying essentially the entire 2.7 acre basin, and rises and falls with seasonal variation in precipitation and groundwater levels. At its lowest observed point in September 1993, the water depth was only 10–20 cm and occupied less than a quarter acre. In general, the upper borders of the basin (e.g., where *Scleria* was observed) had several centimeters of peat over a sandy muck layer to a depth of 0.2–0.3 m, over fine to coarse sands to at least 1.2 m (extent of auger). Some middle areas of the basin had a more rapid transition to sand, while the lowest part of the basin had a full meter of surface muck over sand. Organic matter content determined by ignition of soil samples in a muffle furnace indicated a 63% organic matter content in the vicinity of greatest *Scleria* abundance. Several meters away in wet-

ter habitat where *Scleria* was sparse, organic matter content was 20%.

A series of small wetland basins similar to Rocky Hill Pond can be found elsewhere in Litchfield and adjacent towns of the lower Merrimack River valley sandplain, ranging from single basins less than 1 acre in size to complexes of basins totaling as much as 11 acres. Although detailed surveys have not revealed any other populations of *Scleria reticularis*, many of these wetlands do harbor various combinations of the pondshore associates mentioned above (Sperduto 1994). Rocky Hill Pond is unique among these basins with its broad gradient of wetland habitats ranging from semipermanently to temporarily flooded zones. Each zone occupies significant area due to the moderate slope of the basin profile. This diversity of conditions seems to contribute to the higher species richness as compared to other, often larger, basin complexes of the sandplain system. The discovery of *Scleria reticularis* and associated plants in New Hampshire's lower Merrimack River valley expands the known range of coastal plain pondshore flora from distributions described by Sorrie (1994) for New England.

During the 1980s several houses were constructed immediately around the pond. A road has been built approximately 10 meters from the pond's west shore with a culvert directed into the basin. Direct water pumping from the pond and other local residential and commercial aquifer pumping have the potential to modify natural fluctuations. As with other coastal plain pondshores in the region, development and its associated secondary impacts may diminish the potential long-term viability of the *Scleria reticularis* and other constituents of the coastal plain pondshore flora unless there are concerted local conservation efforts, including community cooperation (Keddy and Reznicek 1982; McCarthy 1987; Keddy and Wisheu 1989).

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